complications encountered and the patient made a rapid recovery. Pathological comment. No tumor formation. Numerous pus filled abscesses.

Diagnosis: Left suppurative nephritis. Ptosis of right kidney with moderately tortuous ureter.

Case 7. Mrs. E. F. T., age 62. Early history indefinite. Three children previous to her 21st year, and a fourth when about 40. Health supposedly good during interim. Three years after birth of last child had pain on left side, for which was curetted; and following this during an attack of pain, discharged considerable pus and blood through vagina. Had recurrent attacks until menopause at fiftieth year. When 53 developed an infection supposed to be the grippe. During the persistence of temperature, she would spontaneously void a great deal of pus and blood in the urine and the attacks would then subside. The temperature was accompanied by great dryness of mouth and a urinous odor of the breath and dysuria. Repeated attacks of the same character occurred up to the time of consultation, except that the microscopic haematuria had ceased, but the pyuria persisted. When first seen was very weak and emaciated and running a high febrile course. During her examination, cystoscopy showed no bladder pathology except the ordinary senile changes. The results of urinalysis and phthalein tests are as follows:

Urinalysis.

	Left.	Right.
Urea	1.8	0.9
Microscopical.		
Pus	Many—10-15 per field	Many—15-20 per field
Blood	Very few	Very few
Bacteria	Few in clumps	Few in clumps
Casts	Few hyaline and epithelial	Few hyaline
Epith.		Many small cells
Functional Tests.		
Phthalein	1 c.c. intravenous	
Time appeared	8½ min.	10 min.
1st period	15 min. 13.0%	15 min. 7.5%
2nd period	15 min. 11.5	15 min. 10.0
Total	½ hr. 24.5%	17.5%

Remarks: The Phthalein test is high considering the fact of having had kidney pathology for over nine years. The pyelograms are interesting inasmuch as the patient has never complained of renal pain. Diagnosis, chronic pyelonephritis of infectious origin, plus deductions as to cause of hemorrhage and renal deformity. Treatment: No doubt the drainage of the kidney pelves have been productive of some benefit. Her physician has been using coli vaccine, a proper amount of induced polyuria, urotropin and hygiene with the result that at present the patient is in splendid condition without fever but with persistent pyuria of low grade.

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THE PREVALENCE OF STREPTOCOCCAL INFECTIONS.*

By RACHEL L. ASH, M. D., San Francisco.

The purpose of this paper is to call attention to the prevalence of streptococcus in epidemic or sporadic form in our community, with septic sore throat as the original focus of infection and the involvement secondarily of other parts of the body, particularly the respiratory tract.

Streptococci were seen as early as 1866 by Rindfleisch in the pus formed during suppurative inflammations, but their pathogenic significance was first strongly emphasized in 1881 by the work of Ogston, who differentiated strepto- from staphylococci; by Fehleisen, who in 1883 isolated the streptococcus erysipelatus (hemolyticus); and by Rosenbach in 1884. The importance of the streptococcus outweighs all other disease producing organisms in their relation to human infection.

Owing to the variations in morphology, cultural characteristics and virulence, it has been exceedingly difficult to differentiate distinctly the various types. The first classification was based on morphological characteristics and pathogenicity (i. e., long or short chains, capsules, etc.) but later investigations have proved that classification based on biological characteristics are more reliable in determining type, because of the influence which environment has on morphology.

The classification of Schottmüller is the most practical for clinical purposes. He classified streptococci into three great groups: (1) Streptococcus pyogenes or erysipelatus, which shows hemolysis on blood agar plates; (2) Streptococcus viridans or mitior, which produces a green halo about the colonies on blood agar plates; and (3) Streptococcus mucosus, which produces a dark green zone around colonies on this medium. Streptococcus mucosus, about whose classification there has been, and still is, considerable discussion, is probably identical with pneumococcus Type III of the now well known classification of the Rockefeller Institute. Here the gram positive diplococci causing pneumonia are arranged according to their immunological characteristics into four types: Types I and II are invariably pathogenic, Types III and IV are commonly saphrocytic, sometimes pathogenic.

Epidemics of sore throat were reported as early as 1875 in South Kensington, England, and between 1880 and 1905 there were ten epidemics reported which were fulminating in character. The first epidemic of sore throat studied in America was that of 1911 in Eastern Massachusetts by Winslow. Here the records of over 1500 cases were collected; from 1100 to 1200 of which were in the immediate region of Boston. During the same period in a district some 20 miles distant about 392 cases occurred. Since this time there have been a number of epidemics, notably in Chicago, Boston, Baltimore, New Hampshire, Vermont and New York, and milk as a casual factor has been almost overwhelming in all these cases.

In nearly all these epidemics of septic sore throat the streptococcus was the dominant organism; there were frequent complications or sequellae such as false membrane, otitis media with enlarged cervical glands, arthritis, erysipelas, nephritis and endocarditis. The epidemics spread to various members of a household, school or institution either by direct contact or by means of infected milk.

It is impossible to classify absolutely the clinical complications of septic sore throat from the type of streptococcus involved. The streptococcus hemolyticus of Schottmüller produces angina and erysipelas and as complications lymphangitis, pleuritis and peritonitis. The streptococcus viridans is the most prominent type in the production of endocarditis lenta. Streptococcal infections are spread by direct invasion from the original focus or by the blood or the lymph stream into distant organs. The relation of the streptococcus to infections of the lower

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respiratory tract, enteritis and puerpural septicemia is well known. In an epidemic of sore throat in Helsingsfors in 1904 in which 2003 cases were studied there were sequellae of erysipelas, otitis media, peritonitis, empyema, mastoid, processes of the antrum of Highmore in the epiglottis region, laryngitis, bronchitis, pneumonia, polyarthritis, acute nephritis, hemorrhagica, oophoritis, neuritis, scarlet fever and infections of the nose and pharynx and adjacent sinuses.

CASE REPORTS.

Case 1. In the Fall of 1916 an epidemic of sore throat occurred in an institution of 200 children in which 30 children were affected. A girl of 16 years, who had never been previously ill, had both strepto- and pneumococci in her throat culture. Though the temperature did not vary between 101° and 103° and the respirations between 36 and 48, her condition soon became alarming. Physical findings were not very well marked. On the fifth day a dullness was noted about two inches in diameter at the angle of the right scapula. An immediate exploratory puncture revealed pus with streptococci in chains of varying length. The left lung showed nothing unusual. Thoracotomy was at once made and the chest was emptied of a liter of yellowish green pus. Her condition did not improve and the following day dullness with bronchial breathing in similar position in the other lung appeared. Another exploratory puncture revealed more fluid with streptococci. Sudden death followed the aspiration.

Case 2. Three weeks later a girl of 14 years entered the Children's Hospital with an illness of five days' duration. Six weeks previously there had been a tonsillectomy. Now there were multiple joint infections and infectious nephritis, pericarditis, patches of pneumonia; streptococcal pus was found in the pleura and streptococci in the blood stream. Her death occurred in the sixth day.

Case 3. In December 1917 another case in a woman of 28 years presented practically the same physical findings as Case 1. After a peritonsillar abscess there appeared the same low temperature and double empyema. The pleural fluid was a blood tinged pus present in enormous quantities. Streptococcus viridans was isolated in pure culture. Death occurred ten days from the beginning of her illness.

Case 4. Three days later a child of 2½ years at the Children's Hospital presented a purulent pleural exudate appearing within 48 hours after the onset of a definite pneumonia. The fluid was aspirated, thoracotomy was performed and streptococcus viridans was found. Anti-streptococcus serum was given and the child is now on the road to recovery after a protracted illness.

Case 5. In January of this year another mild epidemic of sore throat occurred in an institution in the course of which an 18-year-old girl developed a broncho-pneumonia and erysipelas subsequent to a severe tonsillitis.

These cases all occurring in groups within a short period suggested the probability of streptococcus in epidemic form in our community. Since January 15, 1918, I have studied all pneumonias and sore throats in the Pediatric Service of the University of California Hospital, and from other available sources, to determine the prevalence of streptococcus, the type, the clinical findings and virulence. The bacteriological work was done under the supervision of Dr. K. F. Meyer of the Hooper Foundation. In all twenty cases were investigated. The findings are presented in the accompanying table.

The majority of the patients had pneumonia on entrance. In the eighteen cases of infections of the lower respiratory tract (pneumonia, empyema, etc.) fourteen were due to some type of streptococcus. In all of the fourteen cases of primary tonsillitis streptococci were found, in five of which were present this questionable streptococcus mucosus, the others being streptococcus viridans. Some of the cases are especially interesting from the standpoint of contact infection. One, a boy with a lung abscess, secondary to pneumonia produced by the inhalation of a nutshell, showed streptococcus viridans as the prevailing organism in the expectorated pus. About a week later his brother, who had been sharing the same bed, was brought to the Hospital with a streptococcus viridans pneumonia. During my examination of a child with a streptococcus mucosus angina, he coughed into my face. As a result, a tonsillitis and otitis media due to the same organism developed while the nurse in charge of this patient came down with a peritonsillar abscess also due to streptococcus mucosus.

CONCLUSION.

There is no question as to the pathogenicity of the streptococcus and, from a public health standpoint, throat cultures should be examined in severe and questionable cases not only for diphtheria but for streptococcus as well. Streptococcus sore throat

No.	Name	Age	Original Infection	Predominating Condition	End Results	Organism
1	M. P.	Infant	Tonsillitis	Lobar Pneumonia	Recovered	Streptococcus Viridans
2	M. G.	"	"	Broncho Pneumonia Otitis Media	Died	" "
3	E. C.	Child	Pneumonia	Pulmonary Abscess	Recovered	" "
4	J. C.	"	Bronchitis	Lobar Pneumonia	"	" "
5	B. C.	Infant	"	"	Died	Pneumococcus Type IV
6	F. D.	Child	Tonsillitis	Endocarditis Pneumonia	Improved	Streptococcus Mucosus
7	G. H.	"	"	Pneumonia	Recovered	" "
8	D. S.	"	"	Endocarditis	Improved	" "
9	A. P.	Infant	"	Lobar Pneumonia	Recovered	Pneumococcus Type IV
10	F. O.	"	"	Broncho Pneumonia	"	Streptococcus Viridans
11	B. O.	"	Bronchitis	Broncho Pneumonia	"	Pneumococcus Type IV
12	C. M.	"	"	Lobar Pneumonia	"	" "
13	R. A.	Adult	Tonsillitis	Otitis Media	"	Streptococcus Mucosus
14	C. H. P.	"	"	Peritonsillar Abscess	Recovered	" "
15	C. H. L.	"	"	Broncho Pneumonia	Improved	Streptococcus Viridans
16	C. H. C.	"	Peritonsillar Abscess	Pneumonia Empyema	Died	" "
17	C. H. Z.	Child	Tonsillitis	Lobar Pneumonia	Recovered	" "
18	C. H. L.	Infant	Lobar Pneumonia	Empyema	"	" "
19	C. H. R.	"	Tonsillitis	Peritonsillar Abscess	Died	" "
20	G. H. L.	"	Lobar Pneumonia	Lobar Pneumonia Enteritis	Recovered	" "

is a reportable disease in New York and has been since 1914. Nurses and other attendants, members of a household, etc., should use all possible precautions to prevent spreading the infection. On reading the medical history of our cantonments and the number of serious streptococcal infections occurring either as sequellae of measles and other contagious diseases or as primary infections one is impressed by the virulence of these bacteria. The methods of investigation at the present time available are by no means as complicated as other routine procedures, the Wassermann reactions for example, and undoubtedly still simpler methods will be evolved as demands for investigation are made upon local boards of health.

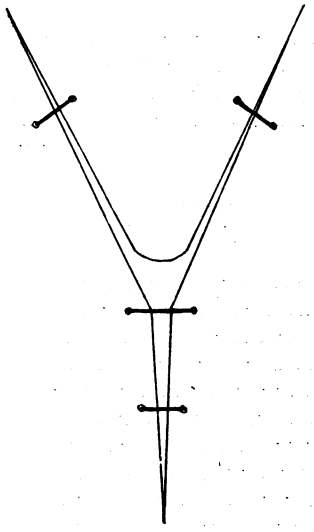

Fig. 1.

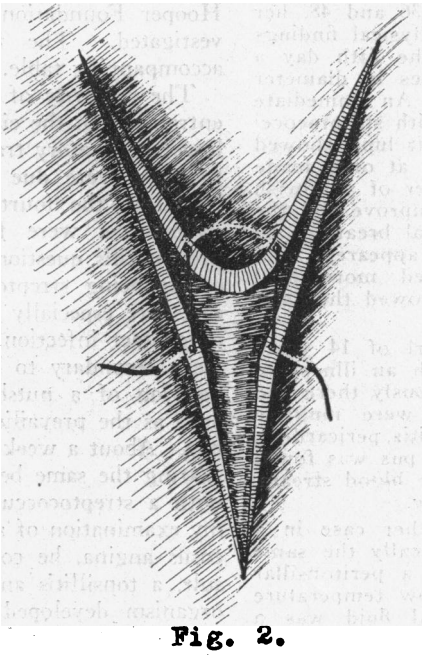

Fig. 2.

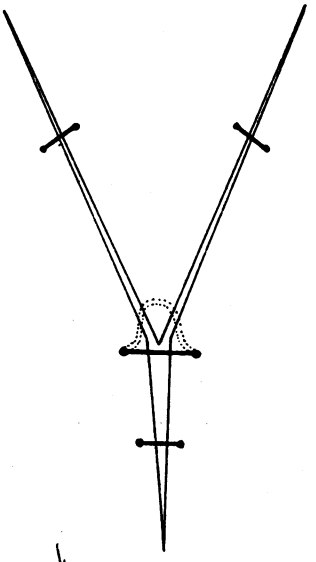

Fig. 3.

A METHOD OF SUTURING "Y" SHAPED WOUNDS.

By J. C. EGEBERG, M. D., San Francisco.

A case of multiple lacerated wounds of the face (windshield accident) came under my care recently where the primary suturing had been done several days before in a country town. The suturing was of the type most commonly used in the closure of "Y" shaped wounds, namely, that shown in Figure 1, and, as a result, the patient has three lumps upon his face that spoil his appearance and will require future plastic work for their correction.

There is always retraction of the triangular piece in "Y" shaped tears of the skin and it is impossible with the commonly used type of suture to overcome this retraction. By the use of a suture placed as illustrated in Figure 2, this retraction is overcome and the apposition is perfect.

The point of the triangular piece is first grasped with tissue forceps and stretched downward in order to determine the point of introduction of the suture. The needle is now put through the skin at the point of branching of the "Y," and is then brought out towards the bottom of the wound; the needle is now passed through the apex of the triangular piece, below the skin and at the same level as where the suture emerges from the side wall of the wound; the needle is now inserted in the opposite side wall of the wound, from within outwards and directly opposite to the introduction of the first part of the suture. On tying the two ends the triangular piece is drawn down by the straightening of the buried portion of the suture and permits perfect apposition of the tip of the triangular piece;—preventing the puckering of the tip and giving three straight line wounds for any further suturing, as illustrated in Figure 3.

The suture corresponds to the crown suture in the Emmet operation for perineal repair.

Wounds with two or more triangular tears are capable of being sewed in the same manner, giving perfect approximation.

Central Emergency Hospital.

INTESTINAL OBSTRUCTION*

With Report of a Case Occurring in a Geophagist.

By HERBERT A. JOHNSTON, M. D., Anaheim, California.

Any part of the intestinal tract may become obstructed and the condition may be termed acute, chronic, or chronic becoming acute. Since it is not purposed in this paper to deal with the incomplete, or chronic varieties, we shall consider only the acute forms of the disease. In this class we find the cases where early diagnosis and prompt relief are paramount to the preservation of the life of the patient.

In order better to understand the causes of intestinal obstruction let us attempt to classify them in regard to the relationship which they bear to the intestinal wall itself. (1) *Intramural*: Such as foreign bodies, gallstones, enteroliths, impacted feces, or anything operating within the lumen of the

* Read at the meeting of the Southern California Medical Society at San Diego, Cal., May, 1918.